

REMARKS

I. Status of the Claims

Upon entry of this amendment, claims 1-5 and 7-21 are pending.

Claim 6 has been canceled without prejudice or disclaimer.

Claim 1 has been amended to incorporate the subject matter from now-canceled claim 6, i.e., to specify that the tungsten particles of the starting material are “cast tungsten carbide particles having an eutectoid composition of WC and W₂C.” Thus, no new matter is added by this amendment. Claim 1 is further amended to specify that the recited phase diagram is an equilibrium phase diagram. Support for this amendment can be found in the original specification at Figure 1, which clearly depicts an equilibrium phase diagram. In addition, claim 1 has been amended to specify that the final product obtained in step c) contains monophasic particles with a cubic face-centered microstructure at ambient temperature. Support for this amendment can be found in the original specification at p. 11, lines 1-3. This amendment adds no new subject matter.

In addition, claims 5, 7, 11-14, 17 and 19 have been amended to remove multiple dependency. Thus, no new matter is added by these amendments.

New claim 21 has been added. Claim 21 specifies that the tungsten carbide particles of the starting material have an average diameter of less than 5 mm. Support for this amendment can be found in the original specification at p. 12, lines 2—22. Thus, no new matter is added in claim 21.

II. Objections to the Claims

Claims 5-20 are objected to under 37 C.F.R. § 1.75(c) because certain of these claims are multiple dependent claims that improperly depend from other multiple dependent claims.

In response, claims 5, 7, 11-14, 17 and 19 have been amended to remove all multiple dependency. Accordingly, this objection should be withdrawn.

III. Rejection under 35 U.S.C. § 112, second paragraph

Claims 1-4, 15 and 16 are rejected under 35 U.S.C. § 112, second paragraph for alleged indefiniteness.

According to the Examiner, claim 1 is indefinite because it is not clear what the expressions “upwardly delimited” and “thermal path” mean. In response, without conceding the validity of the Examiner’s rejection, claim 1 has been amended to specify that the phase diagram is a phase diagram at equilibrium and that the tungsten particles of the starting material are cast tungsten carbide particles having an eutectoid composition of WC and W₂C. Claim 1 as amended would be understood by anyone of ordinary skill in the art at the relevant time (i.e., the time of filing of the instant patent application). The Examiner also points out that all materials have a phase diagram as an inherent property that cannot be changed. The Applicants agree. However, in this respect, the Applicants point out that the purpose of step a) is to clearly define the starting material that should be treated as set forth in subsequent recited steps b) and c). With the aforementioned amendment to claim a), one of ordinary skill in the art at the relevant time would clearly understand what starting material is encompassed by claim 1, step a).

The Examiner also asserts that the action set forth in step c) of claim 1 is not clear, and requests that claim 1 be amended to describe the starting material, the steps performed, and the final product. In response, the Applicants have amended claim 1 according to the Examiner’s instructions. As stated above, the limitation set forth as step a) has been amended to more clearly define the starting material. And, claim 1 has been further amended to describe the final product obtained after performing steps b) and c). Thus, claim 1 as amended is clear and satisfies the requirement of paragraph 2 of 35 U.S.C. § 112. And, because claims 2-4, 15 and 16 all ultimately depend from claim 1, these claims are rendered clear by the amendment to claim 1 as well. Accordingly, this rejection should be withdrawn.

IV. Rejections under 35 U.S.C. § 102(b) and/or 103(a)

Claims 1 and 2 are rejected as allegedly anticipated by or, in the alternative, obvious over, U.S. patent 4,066,451 to Rudy ("Rudy"). According to the Examiner, Rudy teaches melting tungsten carbide and re-solidifying it. The Examiner also points to Example L in Table 3 of Rudy as support for this rejection. In addition, Claims 1 and 2 are rejected as allegedly anticipated by or, in the alternative, obvious over, U.S. patent 4,804,583 to Moustakas ("Moustakas"). According to the Examiner, Moustakas teaches irradiating a tungsten carbide target to vaporize it (step b)), and depositing it as a solid substrate (step c)). The Examiner asserts that step a) is inherently met because tungsten carbide would have the same phase diagram. Finally, claims 1, 3, and 4 are rejected as allegedly anticipated by or, in the alternative, obvious over, published U.S. patent application 2002/0112896 to Kruse et al. ("Kruse"). According to the Examiner, Kruse teaches in Example 1 grinding (which the Examiner asserts is the same as homogenizing) tungsten carbide. The Examiner acknowledges that Kruse does not teach the shape of the tungsten particles, but asserts that "using oddly shaped particles (if not dome by the reference) is an obvious expedient to convert them to a usable form." The Applicants respectfully traverse each of these rejections, on the basis that none of the cited references teach or suggest each and every limitation of claim 1, much less claims 2-4, which depend from claim 1.

Claim 1, as amended, recites a method for treating tungsten carbide particles wherein the particles are subjected to a homogenization treatment in the monophasic domain of the W-C system set forth in step a), in order to obtain monophased particles having a face-centered cubic structure. In addition, as can be seen from Figure 1 of the instant application, the homogenization treatment in the monophasic domain is performed at extremely high temperature turning about 2600°C. This extremely high temperature is required in order to obtain monophasic particles having a face-centered cubic structure. None of the cited references teach or suggest homogenization of tungsten particles in the monophasic domain at such a high temperature. Therefore, none of the cited references teach or suggest a final product containing monophasic particles having a face-centered cubic structure, as recited in claim 1 as amended, because such monophasic particles having a face-centered cubic structure are not obtainable using the methods taught or suggested in Rudy,

Moustakas, or Kruse. Accordingly, none of Rudy, Moustakas, or Kruse teach or suggest each and every limitation of claim 1, and claim 1 is thus novel and nonobvious over each of the cited references.

In addition, claims 2-4 ultimately depend from claim 1. A dependent claim includes all the limitations of the claim from which it depends (and further limits the claim). Thus, because claim 1 is not anticipated by, or obvious over, Rudy, Moustakas, or Kruse, claims 2-4 are novel and nonobvious over each of the cited references as well.

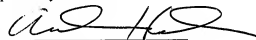
Finally, for the sake of completeness, the Applicants note that new claim 21 also ultimately depends from claim 1. Thus, claim 21 is not anticipated by, or obvious over, Rudy, Moustakas, or Kruse, for the same reason provided above regarding claims 2-4.

IV. Conclusion

This application is believed to be in condition for allowance, which is earnestly solicited. If the Examiner believes there are further issues that could be advance by an interview or entry of an Examiner's Amendment, the Examiner is invited to contact the undersigned attorney.

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Respectfully submitted,

By 

Andrew K. Holmes
Registration No.: 51,813
DARBY & DARBY P.C.
P.O. Box 770
Church Street Station
New York, New York 10008-0770
(212) 527-7700
(212) 527-7701 (Fax)
Attorneys/Agents For Applicant